

# 2017

ASCB White Papers

## ASCB Calls to Modernize U.S. Immigration for Science

**UPDATED**



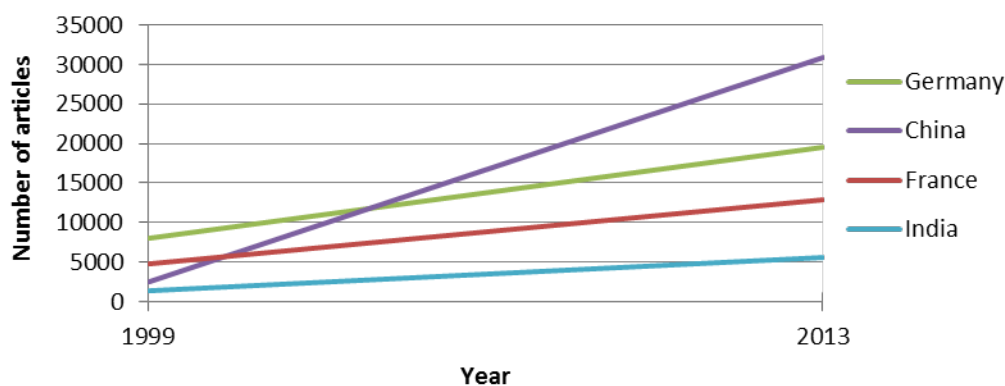


## ASCB Calls for Modernized Immigration Policy to Allow U.S. to Remain a Leader in Scientific Research

By its very nature, the scientific process knows no geographical boundaries. Science has been a global enterprise much longer than many other sectors, because scientists are highly specialized in their fields while physically scattered throughout the globe. Early on, they recognized the need to seek collaborators and exchange results without regard to geographical boundaries, so they chose to travel wherever the needed expert or the best source materials happened to be. Charles Darwin traveled to the Galapagos Islands to study rare animal species to understand evolution and James Watson traveled to the United Kingdom to work with Francis Crick to discover the structure of DNA. More recently, the sequencing of the human genome required a wide and complex international consortium. Not only is research fundamentally international but so is scientific training, as the United States knows well since it is fortunate to attract bright students from all over the world to its distinguished universities and research centers.

The globalization of science is particularly important to researchers in the US. For example, the number of international collaborators on research papers has increased from 13% in 2000 to 19% in 2013<sup>1</sup>. Not surprisingly, therefore, between 2000 and 2013 collaborations between U.S. researchers and scientists in other nations almost doubled.

### Change in Number of Coauthored S & E Papers With U.S. Scientists & Scientists in Select Countries



Source: Science and Engineering Indicators, 2016, Appendix Table 5-56

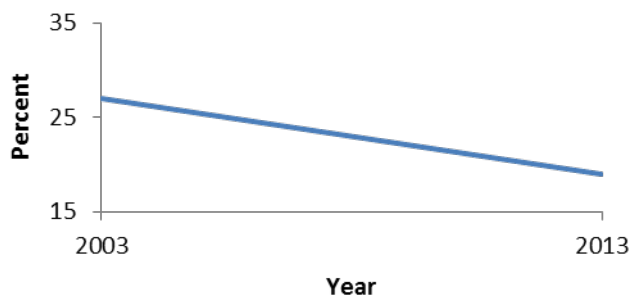
Figure 1: Change in number of coauthored S&E papers with U.S. scientists and scientists in other countries

<sup>1</sup> Science and Engineering Indicators, 2016

This jump in collaboration is due, in part, to the recognition by governments around the world of the benefits of science and technology to their economies. In addition, the practice of science itself has become more interdisciplinary and therefore, individual scientists need to collaborate with leading experts in fields other than their own. Sometimes those experts can be found in one's own lab or at one's institution but often they are located across the globe at a university that focuses on a particular area of science and, therefore, has the expert needed. If science is to remain a top national priority, it is essential that the system guarantees, whenever possible, the free circulation of individuals so that the best experts are available, wherever they happen to be.

The increasing globalization of science makes it even more critical that the United States pays close attention to the health of the American scientific enterprise. As science becomes more international, the pressure on the American system to remain competitive will likely increase.

### U.S. Share of World's Total Citations in S&E Articles



Source: Science and Engineering Indicators, 2016, Figure 5-24

Figure 2: U.S. share of world's total citations on S&E articles

Despite having the best research and educational institutions in the world, existing U.S. immigration laws serve as a significant hurdle for attracting and retaining the world's most promising scientists, and for diversifying the U.S. biomedical workforce and bioeconomy. To preserve our international competitiveness, the American Society for Cell Biology recommends that the following changes be made to existing U.S. immigration policies:

**Restrictions on foreign travel by visa holders should be eased.** The international nature of science requires that researchers travel abroad. Yet very often, travel restrictions on foreign nationals hinder opportunities for their professional advancement, including attending international scientific meetings or collaborating with international colleagues. This pervasive problem not only hurts training but also impedes scientific exchange.

**Match visa durations with training time.** Many international students first enter the United States with an F1 visa, continue on to their postdoctoral training on J-1 visa and eventually may complete their professional training with an H-1B visa. While J-1 holders may remain in the United States for the length of their exchange program, they must often put their

studies and research on hold and return to their home nation for as long as two years before applying for the H-1B visa they will need to complete their training.

**The number of H-1B visas should be based on market demands.** Demand for H-1B visas grew by 20% from FY14 to FY15, but the number of new visas continues to be limited, with certain exceptions, to 65,000 per year<sup>2</sup>. For our research labs and other scientific enterprises to remain competitive with other nations we recommend that the number of H-1B visas increase in proportion to the demand.

During testimony before the House Science and Technology Committee, Bill Gates, Chairman of Microsoft Corporation and co-chair of the Bill & Melinda Gates Foundation, explained the implications of inaction by the United States. He said, “The United States will find it far more difficult to maintain its competitive edge over the next 50 years if it excludes those who are able and willing to help us compete. Other nations are benefiting from our misguided policies. They are revising their immigration policies to attract highly talented students and professionals who would otherwise study, live, and work in the United States for at least part of their careers.”<sup>3</sup>

**Foreign students should receive green cards upon completion of their studies.** The current system makes it difficult for those who are trained here to stay and be productive members of our society. Too often, U.S.-trained and -funded international students must return to their home country to compete against the nation that trained them instead of remaining in the U. S. to strengthen our bioeconomy. In other words, we grow the crop, and then we give the food away for free. Therefore, we recommend that those international students who receive a doctorate in a scientific discipline, including biomedical research, from a U.S. teaching institution should have the option of remaining in the U. S. with a green card.

During the 20th century, the U.S. exploited its position as the world leader in research to lead in globalization, attracting the world's best scientists to come to our shores for collaboration and training. These foreign scientists have been a critical component of the U.S. maintaining its preeminence in research. An unintended and unfortunate consequence of the tightening of security due to the attacks on New York City and Washington, DC on September 11, 2001 was a dramatic restriction on the immigration and travel of foreigners to the U.S. This restriction greatly reduced the US competitiveness to attract the world's best and brightest scientists. It is critical that the immigration policy be changed to allow the U.S. to restore its position as the leader in globalization and maintain its status as the leader in scientific research.

The American Society for Cell Biology is a nonprofit, professional scientific society of basic biomedical researchers with approximately 9,000 members at leading research institutions, state colleges, undergraduate teaching institutions, and biotechnology companies in the United States and 60 other nations around the world.

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<sup>2</sup> Office of Foreign Labor Certification, Annual Report, 2015.

<sup>3</sup> Bill Gates testimony before House Science and Technology Committee. March 12, 2008